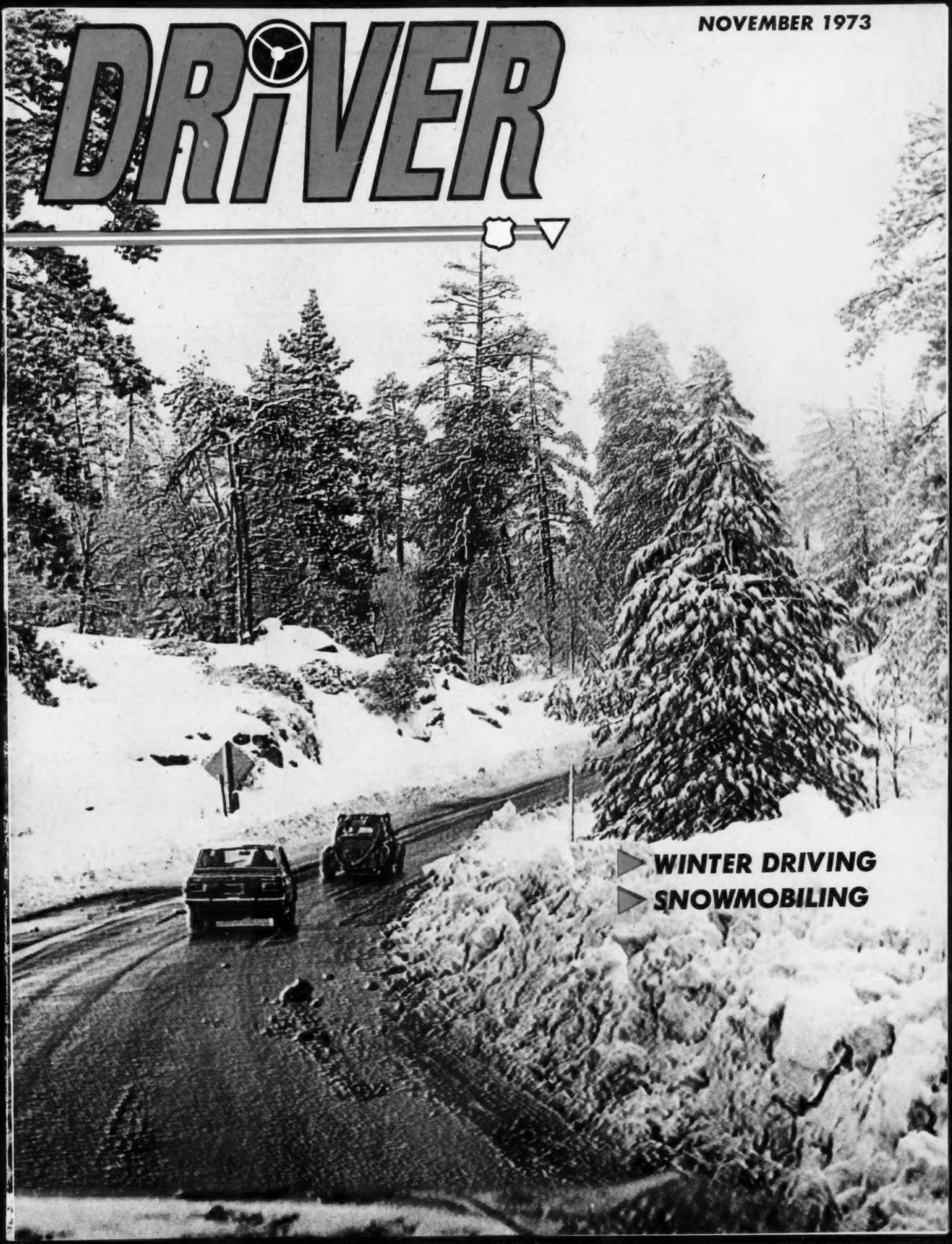
DRIVER

NOVEMBER 1973



- WINTER DRIVING
- SNOWMOBILING

DRiVER

Just getting out of the driveway is sometimes a big problem in areas where the winters are really rough.

(right)
If you are uncertain about the state of traction of the road surface, why not check it out (see article).

WINTER DRIVING *Don't let it get you down*

Winter brings out two distinct types of drivers. One type treats the ice and snow with gentleness—gentle starts, gentle stops, gentle maneuvering. And his car is just as ready as he is for winter driving. The other type of driver never seems to learn. He tries to drive in wintertime the way he drives the rest of the year. He doesn't make his car or himself winter-ready. He gets stuck in snow, frequently skids into trouble, and more likely than not he has trouble getting out of his own driveway on a cold morning or after a fresh snow.

There is really no trick to being a good winter driver. It just involves adjustment of driving techniques and advance preparation of your car.

First, the engine—is it properly tuned? Is the exhaust system in good shape? Have the brakes been checked to make sure there is no uneven pulling when you apply the brake pedal? Are the shock absorbers in good condition, wheels aligned, and tires balanced and carrying the correct pressures? The heater-defroster-defogging equipment should be in first-class order. Do you know how to use it for all weather and driving situations?

The engine's cooling system should be checked to make sure that the antifreeze-water mixture will provide adequate protection for the low temperatures you will experience. Is the radiator clean, leak-free, and are the hoses in good condition? The battery should be charged enough to face those cold mornings when it will have to work harder. Are the windshield wipers in good condition, and is the washer system operating perfectly? Do you have a water and antifreeze solvent mix in the reservoir strong enough to cope with expected temperature lows?

In addition to preparing your car, there are a few items that should be carried along inside the car to meet the needs of winter driving. These include: an ice scraper, small brush or broom, supply of windshield washer antifreeze, rag, shovel, flashlight, and a couple of flares. If you are really serious about winter driving (depending to a large extent on where you live and how much you travel), you'll also

continued

DRIVER

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DEPARTMENT OF THE AIR FORCE

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NEXT MONTH

Return to Cape May

AFRP 127-1

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THE EDITOR SPEAKS

DOUBLE CLUTCH

TAKING THE "OLD BUGGY" OVERSEAS?

Here's something you should know . . .

It might seem a ho-hum fact that 65 percent of the POVs belonging to members of our military overseas are six years old or older. After all, it's only logical this would be true. A guy takes over his three- or four-year-old car, then sells it to another GI when he rotates. No big deal. Right? Well, it IS a big deal if you consider another factor. It has to do with the nonavailability of auto parts.

You can't get parts for U.S.-made vehicles six years old or older except by special order with a lonnnng delivery time. A lot of people think this is the fault of the Army and Air Force Exchange Service. It's not. The parts just aren't available.

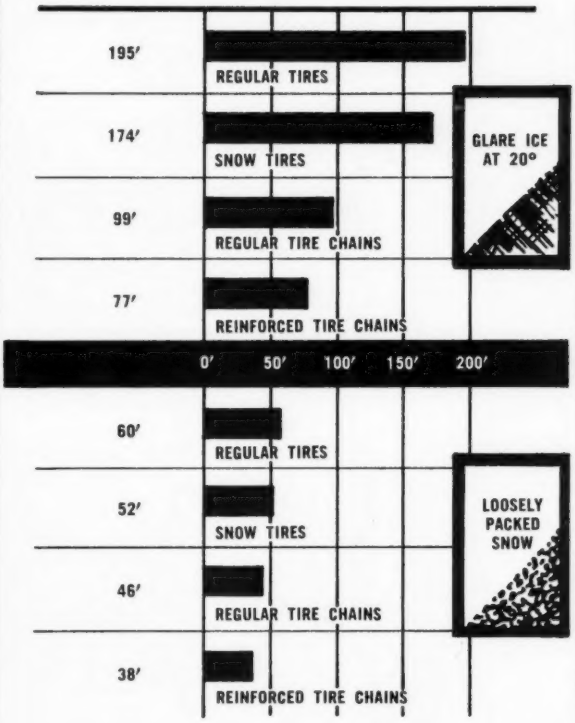
Auto industry practice is to discontinue the manufacture of repair parts for vehicles over six model-years old. Some big parts houses maintain an inventory of major engine and transmission components for an additional two years. But, these parts are scarce. That's the hang-up.

So what does this mean to you? Should you take a new car over with you, buy a foreign car, or what? Well, it's up to you. It's just important to know that you are going to have problems obtaining timely repair on your buggy IF it will see its sixth birthday during your overseas tour. Good luck, Mr. Phelps.

Fig. 1

BRAKING DISTANCE IN FEET — AT 20 MPH

(AFTER YOU GET YOUR FOOT ON THE PEDAL)



For comparison, the braking distance of regular tires on dry pavement at the same speed is 21 feet. Reaction time averages ¾ of a second and adds another 22 feet to the figures shown.

When installing chains make sure you find a good spot to stop out of traffic, and off the road, if possible.

want to carry along a small bag of sand, a piece of old rug or a couple of burlap bags to help provide traction, and a set of tire chains.

Snow tires can offer some assistance under certain conditions—loose snow, for example—but they are no help whatsoever on smooth ice. Indeed, there is some evidence that snow tires offer less traction on ice than regular tires do.

Studded tires may help on icy surfaces, but their use has been banned in several states, parts of Canada, and further banning is contemplated in other areas due to evidence of excessive road surface wear. Most states that do allow studded tires restrict their use to certain months of the year. Drivers are subject to prosecution for driving with studded tires when they are prohibited.

DRIVING ON SNOW AND ICE

Most of us know that a coating of ice or snow between the tires and the road surface causes traction qualities to diminish markedly. Under certain circumstances, such as when temperatures hover near the freezing point, icy surfaces can become more slippery than they are when the temperatures are near zero. "Wet" ice, such as freezing rain, presents probably the most treacherous of all driving environments. Driving under these conditions should be avoided if at all possible. Fortunately, modern road care techniques in most snow states have diminished the problem in recent years. Salt and sanding crews are usually on the job very quickly when such conditions develop.

Whatever the condition—slick ice, packed snow, loose snow—treat it with caution. *Accelerate gently.* Try not to break the very tenuous traction. If you accelerate too fast, the drive wheels spin and polish the surface under the tires even more. So, easy does it. (See Fig. 1)

The same thought applies when you stop. Start slowing sooner than you do on clear pavement, and *brake gently.* If your wheels lock and you start to slide, pump the brakes (press your foot

continued

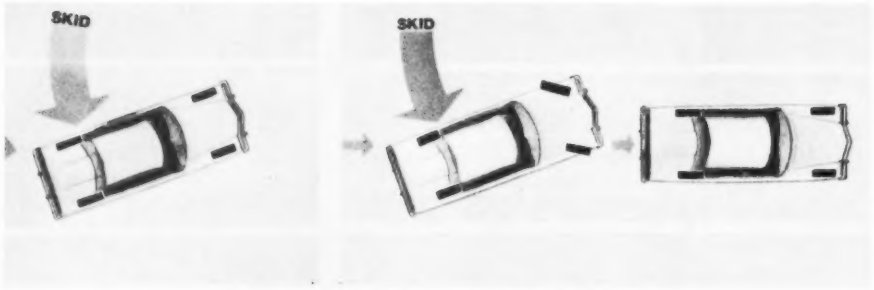


Fig. 2 FRONT WHEEL DIRECTION IN SKIDS

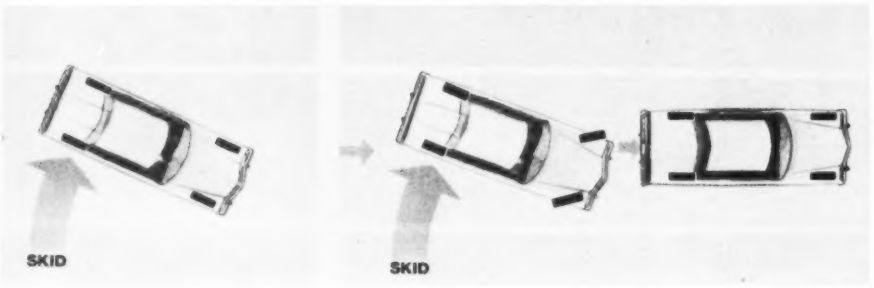
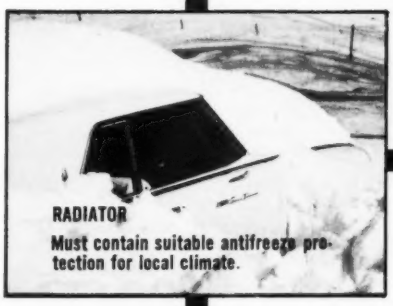


Fig. 3
To stay on top of winter driving conditions you need to think of such things as:



RADIATOR
Must contain suitable antifreeze protection for local climate.

OIL
Use an appropriate winter grade oil such as 10W-30, change more often than in warm weather.

ENGINE HEATER
In some locations they're a necessity.

continued
WINTER DRIVING

on the pedal and release it once or twice a second in a repeating action). This lets the wheels turn and provides a measure of steering control. If the wheels are locked, you cannot steer. Momentum will just carry you in the direction you are heading whether that is straight down the road, off the road, or into on-coming traffic. No amount of steering wheel action will change the direction as long as your wheels are locked and sliding.

If you go into a skid (usually from an over application of throttle on a slippery curve) and the rear of the car slides to the right or left, steer into the skid—that is, if the rear of the car is skidding to the left, turn to the left (see Fig 2). Straighten the steering wheel when the rear wheels start to line up with the front and be prepared to counter-correct if you don't "catch" it at the right moment and the rear of the car starts to skid in the other direction.

Here are a few more winter driving tips you might want to remember: Watch for slippery patches on otherwise bare roads. These may occur in areas shaded from the sun—for example, around clumps of trees, behind buildings, or on bridges. Sometimes the surface of a bridge or an overpass will remain icy when the roads around it are clear. If you see that you must drive over a patch of ice, brake *before* you get to it. Do not brake while you're actually on the ice, and avoid sudden steering maneuvers.

If you have any doubts about the state of traction on the road you are driving, check it out. First, be sure there is no traffic near you (either following or approaching), and that there are no near-the-road obstructions. Then, slow down and firmly press the brake pedal. You will be able to tell the condition of the road by how fast you slow down or whether you start to slide. If you find it's slippery, slow down, even though you see other drivers still driving as though conditions were normal. They may not be aware that the road is slippery—perhaps it just looks a little wet—but they will find out, sooner or later.

Allow greater following distances in all slippery driving situations. Even at 20 mph, it can take you ten times more distance to stop on ice than on dry pavement.

DISTANCE-DRIVING DURING WINTER

More people are traveling longer distances by car every winter, especially with the increased interest in winter sports, the opening of winter vacation areas, and greatly improved road maintenance. If you plan to drive long distances in winter—especially through those areas that are referred to as "snow belts"—the important message is *plan ahead*.

In addition to the equipment that you normally should have in your car for winter driving, carry along some

BATTERY
Is it up to snuff? (See "Backyard Mechanic," this issue).
TIRES
Good tread on regular tires or snow tires. Keep them at recommended pressure.
MUFFLER AND TAILPIPE
Exhaust leaks can be deadly in winter when windows are rolled up.
BRAKES
Good linings and evenly adjusted?
CHAINS
Best for winter's worst weather, so keep them handy.
HANDY HELPS TO HAVE IN THE TRUNK
Sand or metal traction mats, shovel, booster cables, snow brush with plastic scraper on one end (better keep this with you inside the car), tow chains or strap, flares, flashlight, and batteries.
WINDSHIELD
Good wiper arm tension, live blades, plenty of windshield solvent—not just plain water.
LIGHTS
All working, proper headlight aim, lenses clean.

blankets and extra clothing in your luggage, plus some high-energy food—and perhaps a thermos of hot beverage or soup. Know your route and don't always count on being able to cover as much distance as you would in summer. Before you leave, check the regional weather forecasts. As you travel, listen to radio stations in the area in which you are driving for weather bulletins or traveller's warnings.

If you actually become bogged down in heavy snow, police usually advise staying with your car unless you know for sure that you are near help and that you are capable of hiking through the snow. If there is a chance you might be marooned for some time, treat it as a serious situation. Put on extra clothing or wrap a blanket around yourself. If you do not have blankets or extra clothing, make makeshift body insulators from newspapers, burlap bags, rags, floor mats, seat covers—anything you can wrap around yourself or tuck under your clothing to preserve body heat.

If you have been winter-wise, you will not have let your gas tank get below the half-full mark. But CAUTION! If you run the engine to get warmth from the car's heater, keep the following in mind: if you have any doubts about the condition of your car's exhaust system, you should avoid running the engine (an example of why your car should be prepared). But if you do run the engine, make certain the car's tailpipe(s) is not blocked with snow before you start the engine. And *be on the alert for exhaust gases.* Open a window just a little on the upwind side of the car.

Run the engine at a speed about equal to 30 mph, rather than letting it idle. This actually uses less gas for the heat produced and it keeps the battery charged. You will need a well-charged battery to restart the car and possibly for signalling later on with your headlights. After the engine has run for a few minutes, turn on the heater and let it run at full temperature for five or six minutes. Then, shut the engine off and close the window all but the merest slit to preserve the heat. Repeat this only when you feel really uncomfortable from the cold. But do it as sparingly as possible. Preserve the gasoline as long as you can. And, if possible, get out of the car and do some fairly vigorous exercises every half hour or so.

With a knowledge of driving techniques, a well-prepared car, and a little patience, you will find that winter driving can be almost as pleasant and safe as summertime traveling. Winter driving opens a whole new experience in terms of scenery, places to go, and things to do. But a few precautions will help you from getting chilled.

Adapted from "We Drivers," a General Motors publication.

SNOWMOBILING

Better preparation means more fun

This time of year you may notice a glint in the eye of a certain type of winter sports nut. He's the snowmobiler, blazer of new trails, man against the elements, master of his machine, and participant in a relatively new, yet extremely popular sport.

We know a lot of you readers have also been bitten by the snowmobiling bug. To make your activities safer and more fun, we've put together the following information on driving and maintaining snowmobiles.

GETTING STARTED

Some bases have snowmobiling clubs. Joining a club and becoming acquainted with its members is a good approach to snowmobiling. Membership may expose you to experienced snowmobilers who are willing to share some of their knowledge.

If your base doesn't have such a club, and you'd like to form one, your base safety people should be able to guide you to the applicable directives* and help you coordinate the matter through command channels. Air Force Base Safety Officers should be able to provide interested individuals with a copy of a model snowmobile constitution and by-laws which appeared in the November '72 Safety Officer's Kit.

WIND CHILL

One of the keys to enjoying any outdoor winter sport is being properly protected from the cold. This is especially important in snowmobiling because these little beasts really move out and will make you intimately aware of something called wind chill. To get a good understanding of how wind and cold team together to make things unpleasant, take a look at Figure 1.

If you're riding in —20° F temperature, and there is a 10 mph wind blowing, you are exposed to a "wind chill" factor equal to —46° F! This will freeze exposed flesh in no time, so you have to protect yourself by wearing the proper clothing and gear.

CLOTHING

A one-piece, insulated and water-resistant snowmobile suit is the best item for outer wear. And, when you combine it with thermal underwear (long-johns), thermal socks, insulated mitts (not gloves), and insulated, waterproofed boots, you are providing yourself with some of the best cold-weather protection going.

To protect your head, don't forget an approved helmet, goggles or faceshield, and a face mask (knitted balaclava) to cover your cheeks, mouth, and nose. A caution is in order here. If you wear a scarf, make sure to tuck

continued

** Ed Note: Applicable AF regs are AFR 87-3, 34-4, 176-1, 34-67, and AFP 30-3.*

(right))
Complete weather protection is a positive must for safe snowmobile operations. This couple shows the type of clothing that smart snowmobilers wear.

(below)
Your best bet for snowmobiling fun is riding with a group on well-marked trails that have been surveyed and maintained for your safety and convenience.

A trailer can add total family fun to your snowmobilig adventures—but it doubles your responsibility as the operator, too.

Fig. 1

SPORTS WIND CHILL CHART

Est. wind speed in mph	Actual Thermometer Reading (F.)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	EQUIVALENT TEMPERATURE (F.)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	-112
20	32	13	4	-10	-25	-39	-53	-67	-82	-96	-110	-124
25	50	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER (for properly clothed person)				INCREASING DANGER			GREAT DANGER				
	Danger of freezing exposed flesh											

INSTRUCTIONS: Measure temperature and wind speed, if possible; if not possible, estimate. Find the applicable wind speed in the left-hand column and the temperature in the top row. Where the two intersect, you'll find the equivalent chill temperature – that is, the temperature that would cause the same rate of cooling under calm conditions.

This prototype must be the ultimate in snowmobiles! Four seats in a fully inclosed and insulated cab, rear-mounted 4-cycle engine, twin tracks, and speeds up to 50 mph are offered in this glamorous package.

Speed in the snow is great fun—if you observe the elementary rules of safe snowmobiling and know your driving limitations.

continued

SNOWMOBILING

it securely into your jacket. Otherwise, the trailing ends of the scarf might get caught in the track of the snowmobile with disastrous results.

Green-tinted goggles for daytime riding are important, as are clear lenses for late afternoon and evening when the sunlight casts long, deceptive shadows.

Take a tip from your motorcycling buddies and put reflective tape on the arms and back of your outer garments and on your helmet. Some reflective tape applied to your machine will help make it more visible in dull weather and also at night.

DRIVING TIPS

What follows is far from a complete list of things to do or not to do, but if you study it, you can pick up a lot of good tips.

- Learn your capabilities, and those of your machine. Do not exceed either one or you could be headed for trouble.
- Never ride alone. Stay within sight of the group.
- Carry enough spare parts to see you through an emergency.
- Always start off with a full tank. If you plan a long trip, carry a spare can of gas and one of oil, too.
- If your machine has an electric

Snowmobiling can be an exhilarating winter recreation if you are properly clothed for the weather and know what your machine is capable of doing —and what it is **not** capable of doing.

starter, know how to start the engine by hand should it have an electrical failure.

- Perfect your throttle techniques —too much can wipe you out, and too little can stall you . . . maybe in a bad spot. Practice a lot.
- Watch those disc brakes! They'll stop the track, all right, but if you lock up the track, you are riding an expensive toboggan.
- Don't tailgate another snowmobile. You don't do it with your car, so why try it with a tricky snow machine?
- Moonlight riding can be fun, but it can also be dangerous if you don't take the proper precautions. Check your headlamp and taillight before starting out. Carry a flashlight or an electric lantern—just in case. Drive slowly and be especially watchful for ruts, gullies, and ditches.
- If you are the leader on a trail ride, *know the trail before you go*. Have a "tail gunner" to see if anybody gets stuck or drops out with mechanical trouble.
- When crossing roads, remember *the auto traffic has the right of way!* Use a spotter to signal when it's safe to proceed, then cross one at a time at right angles to the road.
- Don't cross rivers or lakes unless you absolutely have to and are certain the ice is thick enough to support you.
- When breaking trail, keep a sharp lookout for barbed wire fences and utility pole guy wires.
- Jumping snowbanks is a risky business. Do you *know* what's on the other side?
- Stay on the marked snowmobile trails. They have been selected, surveyed, and marked for your enjoyment, convenience, and safety.
- Don't drive your snowmobile on ski trails.
- Always check over your machine at every rest stop. Take a rest stop at least once every hour and move around to warm up your arms and legs.
- Know how to recognize and treat frostbite.

MAINTENANCE

Here are a few quick tips on the "care and feeding" of your snowmobile. Your snowmobile is subject to a lot of hard treatment, as a result of traveling over rough terrain, bouncing over ruts, and climbing hills. If you check the following items faithfully, you could save yourself a lot of trouble on the trail.

- Throttle. This must be kept properly lubed and adjusted. If your machine does not have a "kill" button, have one installed.
- Loose items. Go over your machine at least once a week, more often if you ride daily. Check the belts, nuts, bolts, and cables—anything that can work loose. Be especially careful about checking the front ski mounting bolts. Losing a ski can flip you.
- Skis. Check for cracks, and repair or replace as necessary.
- Ignition. Be sure the system is in top shape. It's no fun to be stranded out in the boonies with a broken spark plug wire.
- Treads. It is very important to keep the treads clean of packed snow. Tilt your machine over and rev the engine to spin off all the packed snow. If you're riding in wet, packed snow, you should do this every half hour. If snow locks up your track, you lose control and slide.
- Brakes. Test them before every ride . . . you'll be using them a lot.

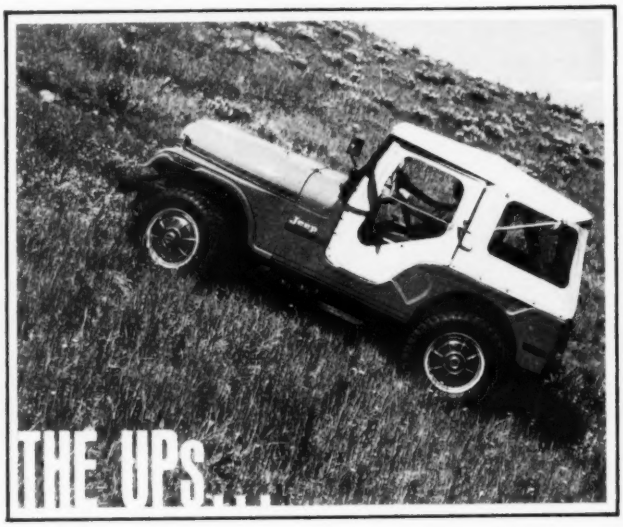
EMERGENCY SPARES

The spare parts and emergency equipment that you carry are of real importance and should be checked out before you go for the snow. A spare headlamp should be carried, as well as a spare taillight bulb and some fuses. A couple of spark plugs, a plug wrench, and especially a spare drive belt should be included. If you have chain drive, carry a couple of chain links and a link repair tool. Also, a pair of pliers, an adjustable wrench, a screwdriver, flashlight, flares, and a tow rope should be on board. Include a small first-aid kit, too, and some matches in a waterproofed container. Don't forget your owner's manual; it's the best source of information if you have to troubleshoot out in a snowbank.

Now you can go!

Photos courtesy Bombardier Limited, manufacturers of Ski-Doo snowmobiles.

THE INs AND OUTs...



THE UPs...

The standard four-wheel-drive vehicle of yesteryear—the military jeep—has evolved into something considerably different today. Contemporary four-wheelers offer the versatility of the jeep, yet are comfortable and easy to drive. They come with names like Blazer, Bronco, Scout, and Commando, which seem to challenge a new owner to rush out and storm a hill or blaze a new trail. But before hitting the boonies or the freeway, it's important to understand the unique features and driving characteristics of a 4WD vehicle.

If you are one of the many new people getting into four-wheel driving (4WD), the first thing you should do is carefully study the vehicle's owner's manual. This should acquaint you with most of the basic operational facts about the vehicle. Then, before tangling with any rough terrain, it's a good idea to talk to some experienced 4WDers about off-roading with a four-wheeler.

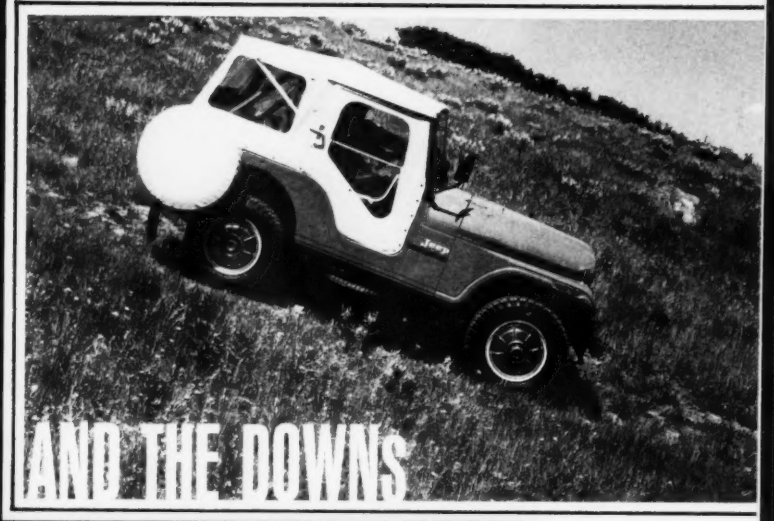
BASICS

With few exceptions, the engines, transmissions, and other basic components used in four-wheel-drive vehicles are the same as those the manufacturers put in their standard production vehicles. This makes the extra-essential

Four-wheel-drive vehicles come in many shapes and sizes. You can get the basic Jeep-type model (with built-in roll bar) or the more expensive and luxurious sedan-type model. But no matter what type 4WD you have, it should have the basic safety and emergency items (shown here) on board.

FOUR-WHEEL DRIVING

Photos by
SSgt Donald R. McCabe



AND THE DOWNS

Adapted from an article by
TSgt O. D. Hartman and
SSgt Robert E. Buchanan

maintenance on a four-wheeler more convenient and less expensive for you.

Many parts have been modified or beefed-up especially for use on 4WDs, however. The big change is in brake systems. More powerful 11-inch drums or disc brakes have replaced the standard 9-inch drum brakes used on most earlier models. Kits for converting drum brakes to discs are also available for most 4WDs. Converting to disc brakes on an older vehicle is well worth the reasonable cost—especially if you drive through water, do a lot of towing, or just generally drive your vehicle hard.

TRANSFER CASE

One essential feature of a four-wheel-drive vehicle that every owner should be aware of is the transfer case. The transfer case is what makes a four-wheel-drive system work. It is attached to the transmission and constantly couples power to the rear axle, while allowing for engagement or disengagement of the front wheel drive. The transfer case also provides an extra low range gear and a neutral position. The neutral position allows the engine to be

continued

connected to a power take-off unit to operate optional equipment, such as a winch.

You should never forget how essential the transfer case is—especially when bashing over rough terrain. Also, the front axle differential is offset to one side to allow the front driveshaft to line up properly with the transfer case. Keep in mind the location of the differential whenever you're going over rough or rocky terrain.

HUBS

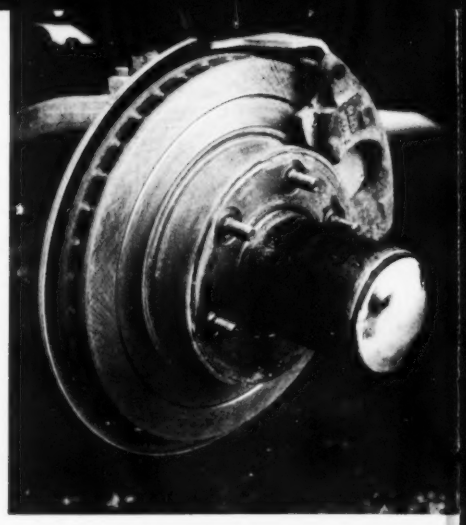
Another essential feature of all but the newest four-wheel-drive vehicles is locking front wheel hubs. Locking hubs are used to disconnect the front wheels from the front axle shafts when the four-wheel drive is not engaged. The front wheels should always be disengaged and allowed to freewheel when the vehicle is in two-wheel drive. If they're not, power and gasoline will be wasted because the front wheels will turn the front differential and drive shaft. This causes a significant drag that has to be overcome by power to the rear wheels.

WINDUP

One of the most important considerations when operating a 4WD is what's known as "windup." Windup, which can be very damaging, occurs when a 4WD vehicle is operated on a hard surface with the four-wheel drive engaged. It results because of the tendency of the front and rear wheels to follow different arcs when a vehicle turns. This difference in wheel travel can create a stress on the drive train when the four-wheel drive is engaged and the front and rear driveshafts are connected.

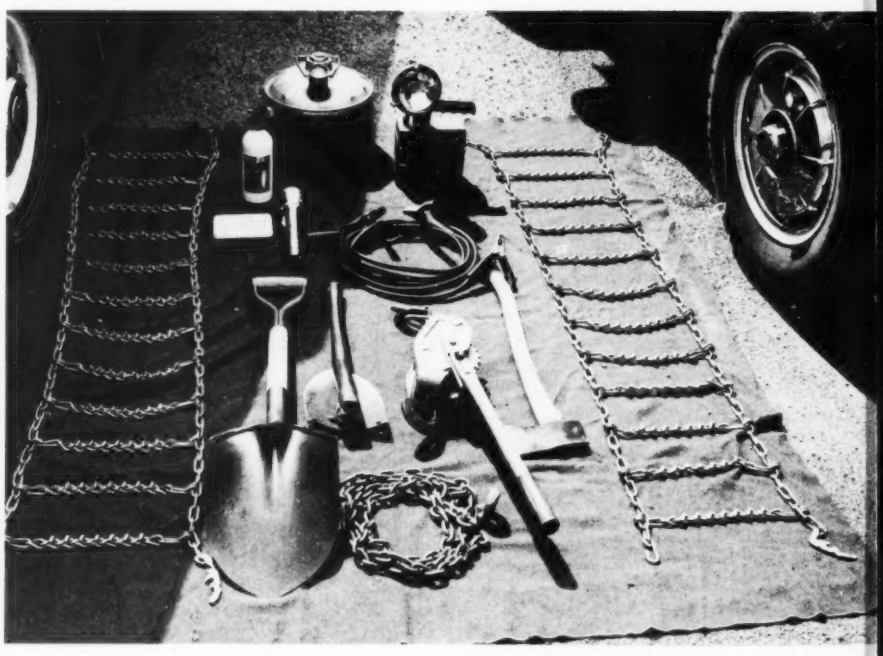
On a soft surface, slippage of the front wheels compensates for the difference in wheel travel and the stress is relieved. But on a hard surface the front wheels cannot slip, and the strain is transmitted through the gear train—causing binding and possibly serious damage. For this reason, it is always recommended that the four-wheel drive always be disengaged and the front wheels locked off when driving on a hard surface that will not allow wheel slippage.

Many new four-wheel-drive vehicles have a special system that allows the vehicle to be driven with the four-wheel drive engaged at all times. This newer system offers several advantages over the older type. First, the driver does not have to stop and lock off the front wheels when the driving surface changes.



(right)
Hefty disc brakes provide plenty of stopping power on new model 4WD vehicles. They don't fade when wet, as do drum brakes.

(below)
Basic emergency items you should stow in your 4WD include a reliable dry chemical fire extinguisher, a good electric light, flashlight, jumper cables, ax, set of tire chains, portable winch (if your 4WD doesn't have a winch mounted on it), first-aid kit, can of gas, tow chain, and a couple of blankets (not shown).



Also, the four-wheel drive can be left engaged on surfaces where it will improve traction and control, such as on a dry road patched with ice.

OFF-ROADING

Many people get into 4WDs purely for the fun of off-roading. If this is what you're into, or plan to get into, there are some essential things to keep in mind. First of all, seat belts and/or

Locking hubs on the front wheels enable the operator to lock his front-wheel power train "in" or "out," according to the type of driving he's doing. The hubs shown are locked "in" for cross-country driving.

harnesses are absolutely essential for safety, as well as just maintaining control of a bouncing 4WD vehicle on rough terrain. Also, be sure that everything inside the vehicle is properly secured. Flying debris can cause real problems inside a vehicle. Roll bars are another feature that's just about mandatory if you plan to take on rough terrain. A full roll cage is best, but some vehicle designs prohibit their use.

HILLING

One of the most fun parts of off-roading is hill climbing. But a few rules must be followed to safely negotiate a hill. To handle a hill, first check the surface for loose rock, then start in low range with the lowest gear possible. Knowing exactly which gear to use is a matter of experience, but not starting in a low enough gear can cause the vehicle to "bog" part way up the hill. It may then be difficult to get started again, or you might have to back down the hill. If backing down does become necessary, it should always be done in reverse to allow the engine compression to help slow the vehicle. Never try to go down a hill in either direction using the brakes alone. Vehicles equipped with automatic transmissions do not have as much "compression hold back" as those with standard transmissions, so more braking power is needed when descending hills.

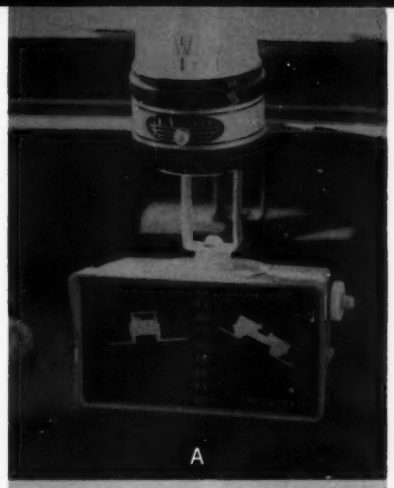
An accessory which is extremely valuable for hilling is a special gage that shows grade and tilt angle in degrees (see photo). If you know the vehicle's climbing ability, this special gage can show when you're approaching that limit.

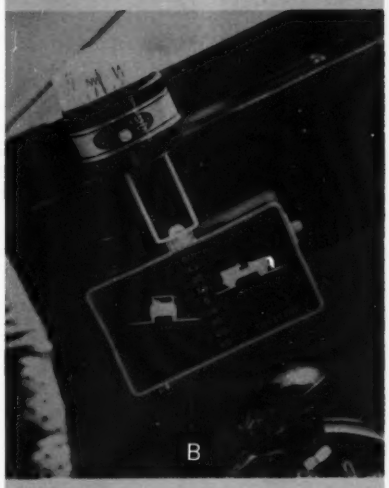
CLEARANCE

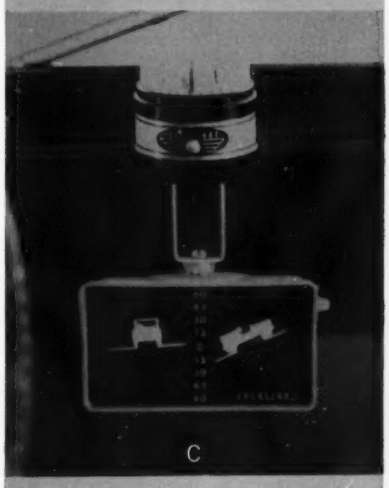
Since 4WDs have more ground clearance than the average vehicle, some drivers are less cautious when driving over rough terrain than they should be. The path that keeps the center of the vehicle as high as possible, and away from danger, should always be taken. Also, skid plates should be used to protect all vulnerable areas underneath the vehicle. Most 4WDs come equipped with skid plates to protect the gas tank and other vital areas. But additional plates can be installed under the oil pan, transmission, and transfer case for even greater protection.

TIRES

A common practice among four wheelers is to lower tire pressures when driving off-road. On rocky or hard-packed surfaces, the rule is to lower the pressure to two-thirds the normal highway pressure. For loose dirt or slick surfaces, the pressure should be dropped to ⅓ the normal. The best tire pressures also depend on the type of tire and the load. Whenever possible the manufacturer's recommendations should be followed closely. Remember to bring the pressure back to normal before driving home on the expressway to prevent tire damage and weird handling.







A "tilt gage" shows the pitch and roll angles of your vehicle. PHOTO A shows the 4WD going up a 25-degree slope with a lean angle between 5 and 10 degrees. PHOTO B shows a 20-degree lean and a climb angle of less than 5 degrees. PHOTO C the vehicle is going down a 20-degree slope with a 5-degree lean. Coupled with a compass, the "tilt gage" can be a valuable piece of navigation equipment.

EQUIPMENT

Fire extinguishers, first-aid kits, spare parts, tools, emergency lights, tire chains, and certain mounted accessories are some of the important items for any four-wheel-drive venture. Most "four-by-four" drivers feel that another essential off-the-road item is a winch. Winches are extremely handy if the vehicle gets stuck, or meets an obstacle which can't be easily driven around. Before using a winch be sure the cable is in good condition—not frayed or unravelled. A cable in poor condition can snap and whip back with enough force to seriously injure someone standing nearby.

Another practical item is a Citizen's Band Radio—CBs have saved many drivers from long walks out of the wilderness. A flashlight and some form of signal light, such as flares or electrical signals for emergency breakdowns along the highway, are essential. Remember to carry a small shovel for digging out of mud or snow. Also, tire chains should be carried year round—especially in mountains where it can snow at any time, or where muddy conditions are prevalent. Chains should be put on the front wheels for best traction if you have only one set.

One of the most important considerations when planning a trip into the wild is being fully prepared by finding a 4WD buddy who wants to tag along. This way, if one of you gets into trouble the other person can render assistance.

OTHER ACTIVITIES

There are many four-wheel-drive clubs around the U.S. and the number is growing. These clubs sponsor off-road excursions, off-road racing, rallyes, and many other functions. They are also involved in search and rescue missions in remote areas.

Racing is another aspect of 4WDs. The Baja 500 and the Mexican 1000 are two of the large sponsored races which have a class for four-wheel drivers. There are also many nationally and locally sponsored races which can be run with four wheelers—but like any other racing, it can be expensive and sometimes hazardous.

If you want to get into racing, remember to first check with your base safety office to obtain clearance for your participation.

A competitor successfully completes the course knowing more about his driving skills and his car's handling characteristics.

Drivers having problems are stopped on course by a red flag. The course marshall then helps them correct their problem.

Street racing is out—autocrossing is in

AUTOCROSS!

by
Lieutenant Larry Randlett

"Nice car."

"Thanks."

"How's it run?"

"Pretty good. I've tweaked a few more horses out of the engine and, as you can see, I've modified the suspension considerably. The problem is, I'm not quite sure of the car's limits—almost lost it on a tight right hand turn the other night. With all the bread I have tied up in this car, it really scared me."

"Why don't you take it to an Autocross to find out how it handles in corners?"

"What's an Autocross?"

Autocross, Gymkhana, Slalom, by whatever name, is an autosports competition in which drivers are timed as they negotiate their car through a specified course. The route is usually marked by pylons similar to those used to warn motorists of road construction. These courses allow participants to test their driving ability and learn the limits of their cars—safely. Besides, autocrossing is fun!

The Mother Lode Autosports Safety Club of Mather Air Force Base, California, recently showed DRIVER how to stage an Autocross in four easy steps—once the go-ahead has been given by the base safety office.

STEP ONE—SELECTING A LOCATION

Autocrosses are held on parking

A Shelby driver learns that smoking tires mean a loss of traction, control, and valuable seconds.

All cars are carefully teched prior to being allowed on the course. They are kept well away from the course prior to the start.

lots, race tracks, public streets, runways, aircraft parking ramps; anywhere there is a large paved area free of obstructions. Military installations usually have a number of such unobstructed paved areas. Select an area that has relatively even pavement (to insure good handling) and is clear of curbs, light standards, telephone poles, trees, and buildings. If obstructions can't be removed from the Autocross area, route the course around or away from the objects.

STEP TWO—SELECTING A DATE

Weekends are usually best for Autocrosses. To insure a good turnout, avoid a scheduling conflict with other major local area events. Autocrosses can be easily integrated into organizational picnics or base open house weekends.

STEP THREE—THE EQUIPMENT

Essential to any Autocross are pylons similar to those used by road construction crews to mark work areas and redirect traffic. These are used to mark the Autocross course. Anyone striking a pylon may be assessed a one- or two-second penalty per pylon. Pylons can usually be borrowed from the security police or civil engineers, a local construction firm, another car club, the highway patrol, or the state police.

TIMING DEVICE

Some form of timing device is also required to time cars through the course. The Mather AFB club uses an electronic timer borrowed from another Sacramento car club. However, two men with stop watches computing an average time will provide an accurate and satisfactory means of timing the cars.

FIRE PROTECTION

Very important is some form of fire protection. This can either be a fire truck or several handy fire extinguishers. Although fires at Autocrosses are rare, there is no need to take chances.

PEOPLE

It doesn't take very many people to stage a successful Autocross. First, you need a technical inspector to

continued

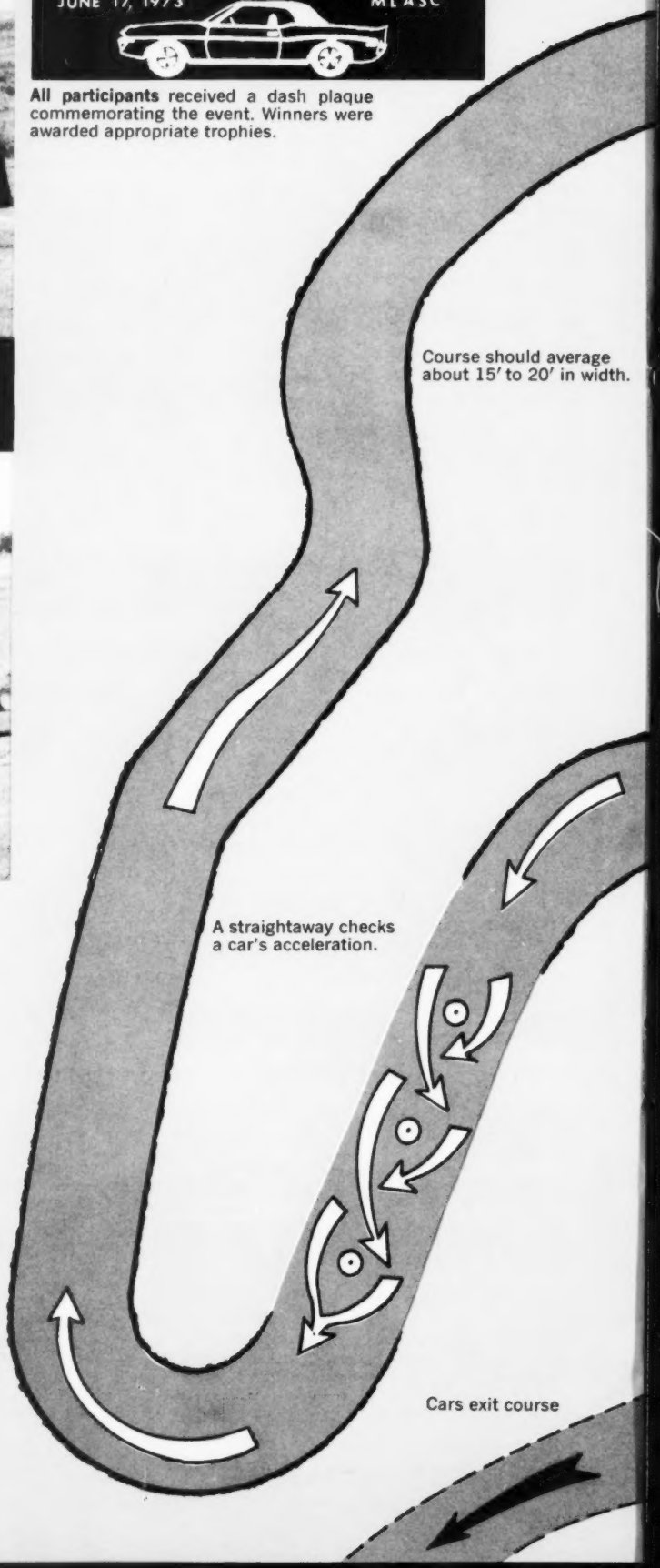
TECH INSPECTION CHECKLIST	PASS	FAIL
DRIVER: Is he or she in condition to drive in a competition event?		
SUSPENSION: For a vehicle to run in a competitive event, the front suspension must be tight: shocks, wheel bearings, and front ball joints should not be loose.		
UNDERCARRIAGE: Muffler system or headers will not be hanging loose or too near the ground to provide proper clearance.		
ENGINE: Engine will have no visible gas, oil, or water leaks. All hoses and belts will be checked for wear.		
INTERIOR: There will be no loose objects inside the vehicle. Seat belts must be in good condition, and used when driving the course.		
TIRES: Tires will have at least 1/16" tread depth. Tubeless tires will be inflated to their maximum allowable pressure. If tube tires are used, the pressure is up to the driver.		
BRAKES: A hands-on-wheel stop will be required by each car prior to completion of Tech. Brakes must stop vehicle within a reasonable distance without pulling in either direction.		
HELMETS: Approved helmets will be worn. We require driver's license and ID card surrender, in deposit, for helmet. This will insure that all individuals in the event are eligible, and will insure the return of the helmets.		

Fig. 1

Courses should be well marked with room to maneuver as shown here. Fire fighting capability is a must.

A Porsche driver learns his limit as his car tries to negotiate the course sideways.

All participants received a dash plaque commemorating the event. Winners were awarded appropriate trophies.



continued

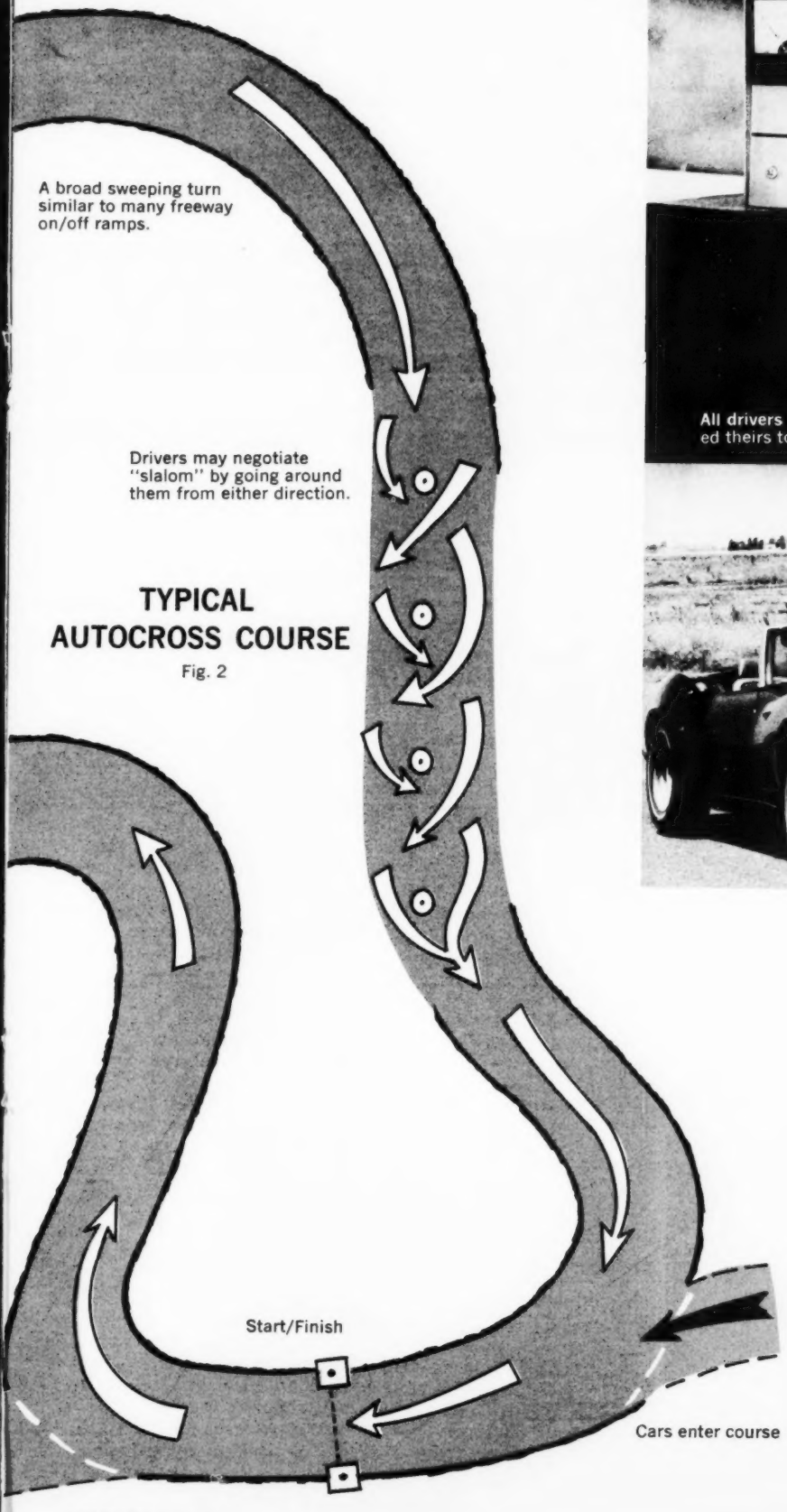
AUTOCROSS

check all participating vehicles for safety, using the checklist illustrated in Fig. 1, as well as accept entries. As already indicated, timers (usually two) are required to keep a record of each driver's performance. Finally, you need a course marshall to start the cars onto the course, insure that each car successfully completes the course, and replace any pylons knocked down.

STEP FOUR—SETTING UP THE COURSE

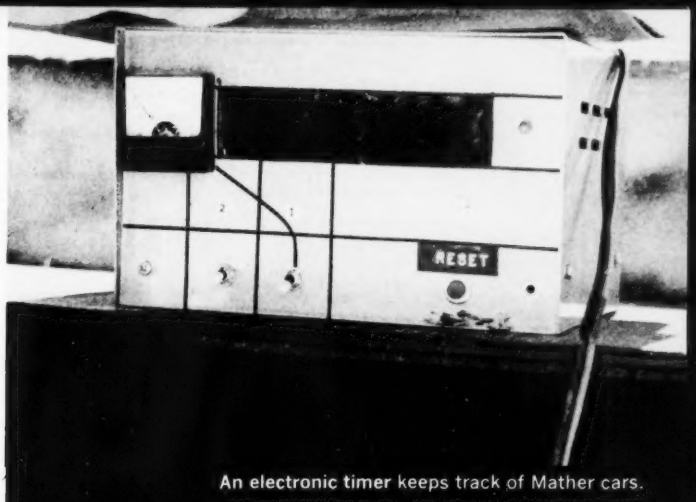
Now that you have the equipment and people, it's time to set up your Autocross course. The variety of courses is almost infinite but there are a few guidelines to follow.

The course should direct cars away from any object or surface imperfection that might present a hazard to


A broad sweeping turn similar to many freeway on/off ramps.
Drivers may negotiate "slalom" by going around them from either direction.
Start/Finish
Cars enter course

TYPICAL AUTOCROSS COURSE

Fig. 2



An electronic timer keeps track of Mather cars.

All drivers are required to wear helmets. Club members loaned theirs to those who didn't have them.

either car or driver. The course itself should look very much like a miniaturized road race with turns, slaloms, and straightaways. The course is marked with the pylons. The contestants generally complete three laps of the circuit. The first lap is for practice and the second two are for time. Figure 2 shows a typical Autocross course. You will notice there is no backing up, and there are no tight 180° or 360° turns. Instead, the course should simulate "road" conditions to test skill and reactions a driver needs in everyday, as well as emergency, driving situations.

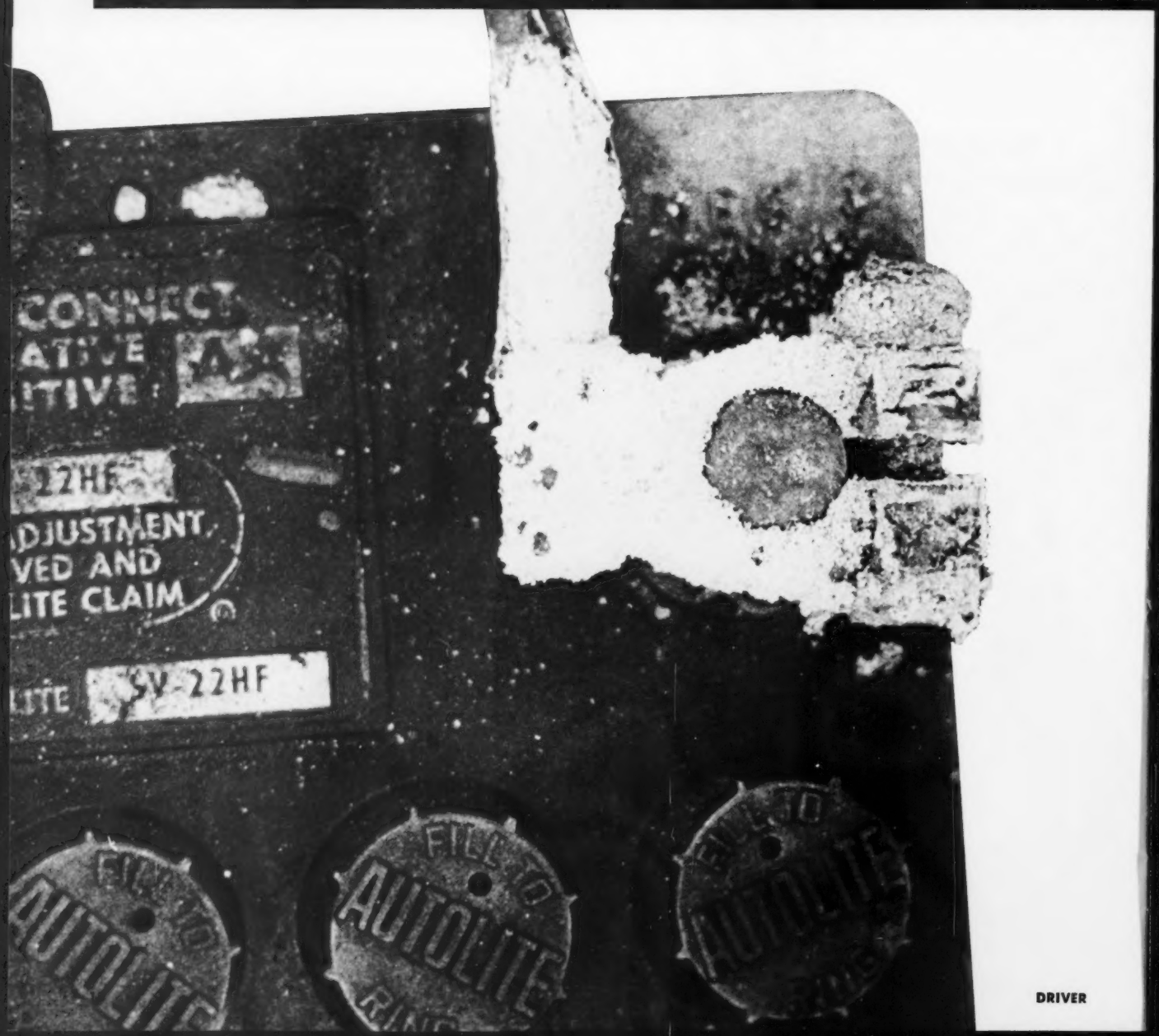
Mather's Autocross was a big success. Cars were classified so that each class would be competitive. Included in the competition were everything from brand new Porsches to full-sized American sedans. Everyone learned a lot about themselves and their cars, and everyone had fun.

Now it's your turn. . . .

THE BACK-YARD MECHANIC - - PART XI

THE BATTERY

Don't let your battery let you down!



You probably take your car's battery pretty much for granted. In fact, you've probably been ignoring if not totally abusing your battery all summer and getting away with it. But unless you want to be walking that first morning winter hits hard, you'd better reestablish a proper relationship with your battery.

Many batteries make it through summer without a hint of trouble, but expire the first time the mercury drops. This is because cold absolutely zonks a battery. A fully charged battery loses nearly 65 percent of its available power when the temperature drops from 80° to 0° F. But . . . your car's engine requires 2½ times the cranking power to fire up at 0° as it does at 80° F. So, you can see why it's essential to get your battery ready for the cold season *before* the bottom drops out of the thermometer.

Also, by getting your car's battery in shape now and keeping it that way, you'll save a lot of money. You shouldn't have to worry about tow charges or jump starts. Plus, with proper battery maintenance and care, you can easily double the guaranteed life of a battery.

WINTERIZING

If you have a new car, you might have a sealed, maintenance-free battery—this is the new trend in battery construction. But chances are you have the old-style battery that's going to require a bit of preparation to get you through the cold season.

The first step in winterizing a battery is a cell test. The corner service station can check out your battery, or you can invest in a handy battery hydrometer and do the job yourself. An adequate hydrometer can be purchased for less than $2 at any auto or discount store. It gives an accurate indication of a battery's condition by measuring the specific gravity* of the electrolyte. Here's why and how.

** Specific gravity is the weight of a substance compared to an equal weight of water.*

An inexpensive battery hydrometer provides a quick and accurate battery strength test. It is also handy for adding water to the battery.

SPECIFIC GRAVITY

A standard storage battery produces current on demand through a chemical reaction between the battery plate material and the sulfuric acid in the electrolyte liquid. When a battery is fully charged there is a high percentage of acid in the electrolyte to react with the plates. Since acid is heavier than water, the specific gravity is high if a battery is in good condition.

When a battery discharges, the acid in the electrolyte combines with the material in the plates and changes to a solid substance (lead sulfate). This is what is known as battery sulfation, or sulfating. When this happens the specific gravity drops because a high percentage of the heavier acid has gone out of solution. So, low specific gravity indicates a weak or discharged battery.

STRENGTH TEST

To check out a battery with a hydrometer, simply draw a sample of electrolyte from each battery cell—jotting down the specific gravity reading* and returning the electrolyte to the cell it was taken from before testing the next cell. A good cell will have a specific gravity of at least 1.260 or higher. A discharged cell will read 1.160 or lower. These figures are based on an electrolyte temperature of 80° F. So, if you want exact readings, check the temperature of the electrolyte and deduct

continued

** Some inexpensive hydrometers are calibrated in only "Good," "Fair," and "Poor" ranges. Because of the limited accuracy of these hydrometers, the battery should be checked at a service center if a reading other than "Good" is obtained.*

.004 from the gravity reading for each 10 degrees below 80° F, or add .004 for each 10 degrees above 80° F.

CHARGE?

Variation between the cells exceeding .050 indicates bad cells—the battery should be replaced. If the battery is slightly discharged in all cells, it can probably be brought to full charge with a small home-type trickle charger.

If the battery is badly run-down or fails to charge to at least 1.225 in every cell, it should be checked out by a reputable shop. The battery may be able to be revitalized by a slow charge with a heavy-duty commercial charger. A shop can also check your battery with a variable load tester if you are uncertain of the battery's condition.

OTHER MAINTENANCE

If your battery passes a specific gravity test and/or is brought to full charge it should get you through the cold season with no sweat—provided you take several more precautions. Dirt and corrosion on the battery case and terminals trap moisture and promote slow discharge. To prevent this, you should periodically remove the battery from the car and thoroughly clean it. Many GM cars, however, have sealed side terminals which require only occasional wire brushing of the terminals.

PRECAUTIONS

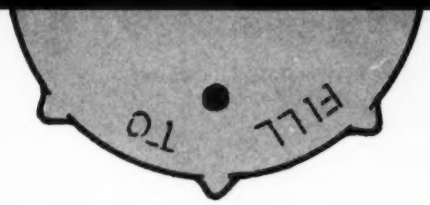
Before handling a battery, however, be sure to remove all rings and jewelry. Also, remember that battery electrolyte is an acid solution. If you get any on your skin or colthing rinse it off immediately; and, wash your hands and arms with soap and water when you'er through working with the battery. Finally, never smoke when working around a battery. Batteries normally give off explosive hydrogen gas—especially when being charged.

When you're ready to remove the battery for cleaning, locate the ground cable—this is the cable connecting to the engine or car frame. Nearly all American cars are negative ground, but check to be sure. The negative cable should be black and the word "Neg" or a minus sign should be molded on the battery case or terminal.

With the ignition switch off, loosen the clamp bolt and remove the negative cable. A special terminal puller (see picture) is recommended for removing the clamps, but a screwdriver

When removing a battery, the ground cable (usually the negative cable) which attaches to the engine or car frame should always be removed first. Replace it last when reinstalling a battery.

A special cable-terminal puller is best for removing battery cables.



and pliers will do the job if you're careful. You may have to spread the clamp to get it off the terminal without a puller. Pull the negative cable away from the battery and remove the positive cable.

CLEANING

With both cables removed, loosen or remove the battery hold-down bracket and lift the battery from its carrier and place it on the ground. Using steel wool or a special cleaning tool (see picture) clean all dirt and corrosion from the battery posts and cable clamps. Replace the cables if the insulation is cracked, wires are frayed, or the cables are otherwise damaged.

After cleaning the terminals and clamps, scrub the battery case with a baking soda solution. Rinse the

continued

Accumulated corrosion like this can easily short-out a fully charged battery. The battery terminals and cable clamps should regularly be cleaned with steel wool or an inexpensive battery cleaning tool (pictured).

battery thoroughly with clean water, and let it dry. Before reinstalling the battery, check for cracks in the case—small ones can be repaired with a special battery sealer, but large ones call for a new battery.

Replace the battery so the appropriate terminals and cables correspond, and install the hold-down bracket. Don't overtighten the bracket—this can crack the battery case. After tightening the cable clamps, cover the tops of the terminals and clamps with a light coating of petroleum jelly to prevent corrosion build-up.

BUYING A BATTERY

We've talked about revitalizing a battery—but what if your old battery is shot? Well, if you're into saving money you should slide down to the local discount or department store—pick up a battery and install it yourself. Department stores offer a variety of power range batteries for about ⅓ to ½ the price of an equivalent battery at a service station.

The only trick to buying a battery at a discount store is to check the application chart that shows what battery you need. Be sure and get one with at least the power rating of the battery you car presently has. Generally, your best bet is to get a slightly heavier-duty battery than the chart recommends. A less powerful battery has to work harder and, therefore, is not going to last as long. A battery more powerful than required is also less likely to fail, since it has power to spare for most conditions.

A new battery can be installed following the hookup instructions given

Periodic removal and washing of the entire battery with baking soda solution will prevent dirt from discharging the battery. The case should be thoroughly rinsed and dried before reinstallation.

previously. Just be doubly sure you have the cables connected to their proper terminals. This shouldn't be a problem since the terminals are clearly labeled on the battery. You can doublecheck the hookup by turning the lights on with the ignition key in the "On" position. If the cables are properly installed, the amp gage will show a discharge or the alternator warning light will glow. If not, reverse the cables.

WATER LEVEL

Proper maintenance is essential for prolonging battery life whether you have a new power plant or you're still making it with the old one. Keeping the electrolyte up to its proper level is the most important battery maintenance. Check the water level at least every two weeks—especially in summer when the water evaporates.

The required water level should be marked on the battery case. If it's not, maintain the level at about $\frac{1}{8}$- to $\frac{1}{4}$-inch above the plates. Distilled water, if available, should be used to bring low cells up to the proper level. However, tap water is better than no water if the battery is low. But be sure not to overfill the battery—or spill water on the case. Over-fiilling the battery causes it to discharge and possibly even freeze in cold weather. Also, if you add water in winter, be sure to do it right before you are going to drive the car to prevent the battery from freezing. And don't perform a hydrometer check until about three days after adding water.

WINTER CHECKS

Along with checking the electrolyte level regularly, an occasional hydrometer check is a good idea in

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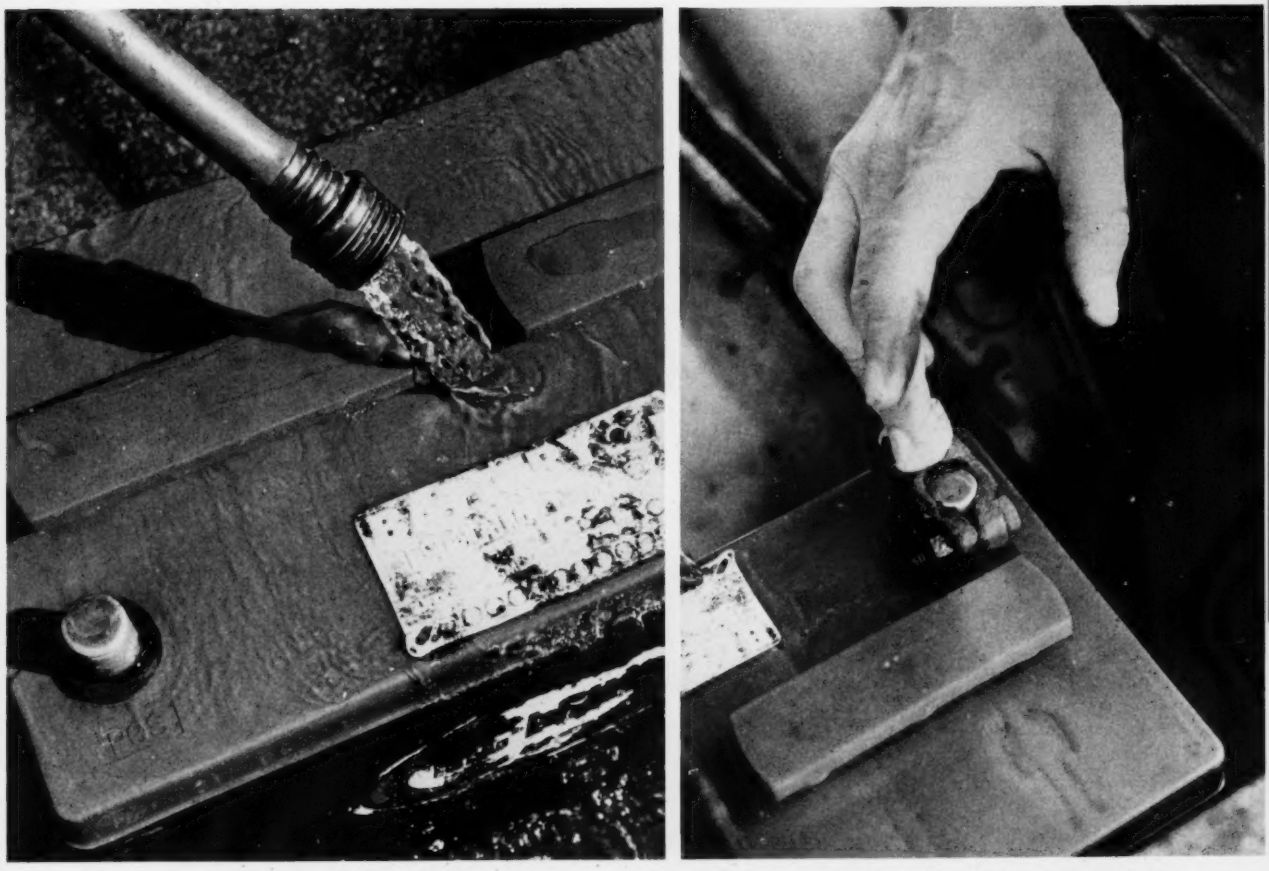

After washing, the battery should be kept clean and dry. After reinstalling the cables, lightly coat the tops of the terminals with petroleum jelly to prevent corrosion build-up.

winter. A perfectly healthy battery can discharge in winter due to heavy use of accessories such as the heater and defroster. This is where an inexpensive home-type trickle charger can come in handy. A slow overnight charge can get a battery up to full strength and make sure it fires up the engine in the morning. Also, a fully charged battery is less likely to freeze than one that is run-down. However, to prevent battery damage be sure to follow the charger's instructions carefully. Never try to charge or jump a frozen battery.

Even if you keep your battery properly charged, the water level correctly maintained, and regularly clean off the dirt and corrosion, you still might come out some morning, turn the ignition key, and be greeted by only a low groan from under the hood. When this happens you'll probably need a jump start. Assuming you have a set of heavy-duty jumper cables, the job will be simple and safe if you check out "Jump Starts," September '73 DRIVER for the correct jump start procedures.

An inexpensive home charger is great for keeping a battery at full charge in winter. All battery chargers should be used carefully according to the manufacturer's instructions.

The following list of battery tips can also help make sure your battery survives this winter—maybe even a couple more.

BATTERY TIPS

- Along with keeping the water level properly maintained, keeping the battery clean and dry is essential for maximizing battery life. Check the terminals periodically for corrosion build-up. Corrosion frequently shorts-out a full charged battery—corroded terminals is the first problem to check for if the starter fails to work and the headlights won't come on.

- If you have to add water regularly to one or two cells, the battery may have a cracked case. But if all or most of the cells require water more than every 1000 miles or so, the battery is probably overcharging. Have the voltage regulator checked out to prevent severe battery damage.

- Check the generator/alternator belt regularly for proper tension. A loose or glazed belt can run down a battery quickly.

- Keep the engine properly tuned to reduce the starting load on the battery.

- Get in the habit of turning off all accessories every time you start the car.

- When starting a cold car, place the transmission in neutral and disengage the clutch to reduce the starting drag.

- Avoid slow speed and short distance driving that doesn't give the battery time to charge back up after a start—especially in winter when the battery has to work harder to start the engine.

- Try and limit the use of accessories when driving in stop-and-go traffic.

- If you don't plan to use your car for a week or so in cold weather, remove the battery and store it in a warm place to prevent it from discharging and possibly freezing. Wrap the battery in old rags to prevent acid damage to the area in which it's stored.

WHAT
SHOULD YOU DO?

You are driving 65 miles an hour and without warning you see a sheet of water covering the road. The highway is clear of all other traffic. What should you do?

A. Hard brake and release before hitting the water, hold wheel firmly, and steer straight ahead.
B. Hard brake and steer left to avoid hitting water.

Answer on page 28

BACKFIRE

WEIRD LIGHTS

Late one night on a return auto trip to Bergstrom AFB my wife pointed out some rather weird lights off to our left. They were twinkling and moving closer on a collision course. What threw us was their configuration and twinkling.

As I slowed the car down to a crawl, I suddenly noticed a "railroad crossing" sign near the roadway. There were no lights, blinking or otherwise, and no warning drop gates. I stopped well in front of the crossing as we heard a train horn. Sure enough, a train on my left whizzed by illuminating the entire landscape including the steeply banked track on which it travelled.

The lights we had seen were those of the locomotive, and their weird configuration must have been caused by the locomotive's position on the banked curve. Anyway, had we been travelling the posted speed limit, the roadway sign would have been ineffective. I wanted to pass on a word of warning to your readers who travel in rural, or semi-rural areas. Take it from me, that train was really zipping along!

2d Lt Neal E. Gilbert, USAF, MSC
USAF Hospital Bergstrom/SGM
Bergstrom AFB TX 78743

IMMATURE DRIVERS AT ANY AGE

I have been on active duty in the Air Force for three months and have read about six issues of DRIVER. The most recent was the September '73 issue. You ask for opinions, and that is why I am writing. I am upset with the constant criticism of your readers toward young drivers. I am seventeen and have been driving for over two years. Most of my driving has been in Chicago, but I have also driven a 900-mile trip on expressways and rural highways. I have not been in a single accident, nor received a single ticket for violating a traffic law. You don't have to print this, but I have avoided four MAJOR potential accidents caused by the blunders of unlawful drivers, none of them young. Certainly there are immature drivers, but they are not confined to distinctive age groups.

Also, I believe that insurance costs should be according to the individual's driving record and not his AGE. It is unfair to the many, many good mature YOUNG drivers.

You have a great magazine, and I am sure it is helping people everywhere.

AB Samuel E. Manto
Casual Mail Section
Lackland AFB TX 78236

You have a valid point. Also, thanks for the favorable comment about DRIVER. Good luck as a new member of the Air Force.

LETTERS TO THE EDITOR

PAT ON THE BACK

Let me express my appreciation for your publishing a first-rate magazine in clear, concise and understandable language for both the vehicle driver and the backyard "tinkering" mechanic. Thanks too for the generous use of "how-to-do-it" photos; another fine job of editorship for the reader. Best wishes for continued success.

Col Carl B. Stackhouse, USAF (Ret)
4010 Terrace Drive
Annandale, Virginia 22003

5000-TON TRAINS

As a 30-year employee of the Santa Fe Railroad (Barstow & San Francisco), I found your September issue's "Double Crossed at the Crossing" most interesting. But, perhaps your reference to a 498-ton freight might be misleading. The Santa Fe Super "C" is a special type service, with a limited number of cars. Freight trains normally are much heavier, with 5000 tons not uncommon.

Also noted that trains are peculiar in that they cover 44 feet of track per second at 30 mph, but 92 feet at 60 mph!

Anyway, your publication is most interesting and informative. I have often wondered how many young drivers are alive today because of something they learned from DRIVER. Keep up the good work.

N. M. Salsman
Depot Safety Manager
Marine Corps Recruit Depot
San Diego CA 92140

Thank you for the kind words about DRIVER, and the info concerning freight train tonnage. It makes it even more obvious why such a long distance is required to stop a train. Sorry about the distance—covered error. We should have said 88 feet at 60 mph, not 92 feet.

HAPPY BOATING

As a Coast Guard aviator and private boat owner I enjoyed immensely your August issue with Part II of "Before Casting Off." Both professionally and personally I cannot overemphasize that *boating knowledge and preflight planning* for any cruise, short or long, pay off with added dividends.

As any Coast Guard aircrewman or seagoing member can testify, the sea holds no forgiveness for those that would tempt it. Day in and day out they have seen the end result of poor preparation and lack of common sense.

American boater—plan that trip, obey the rules of the road, let common sense dictate your actions and safe boating to all!

Lt Tom Johnson
Coast Guard Air Station
Annette, Alaska 99920

BIGGEST HIGHWAY PROBLEM

I have been an avid reader of DRIVER for years and have a few comments concerning the September issue's "Opinions" feature. Not one of the four people interviewed mentioned what I think is one of the biggest highway problems. This problem is the failure of vehicles to keep to the right except when passing, regardless of the type road travelled. On a two- or three-lane highway this leaves the door wide open for people to pass on the right which creates a very hazardous situation. I would like to see a federal law passed making it a serious traffic violation to fail to yield to overtaking vehicles in this situation.

My comments about cruise control are that it should be used only under the best of highway conditions, *never* during wet weather.

SSgt David G. Slocum
26th Air Division TODO/LGKQC
Luke AFB AZ 85301

FEMALE READERS

I would like to thank you for publishing the article on "Jump Starts" in your August '73 issue. I found the article very informative and easy enough for a girl to follow (which I am). Also, in reference to your August issue "Backfire" column, "We're Not 'Guys'," I'd like to say that DRIVER has a wider circulation among *female* readers than many may think.

A1C Rene D. Bastien
40th Tactical Group/SP
APO New York 09293

Address your letters to:
Editor
DRIVER Magazine
AFISC/SEDD
Norton AFB CA 92409

IN THE DRIVER'S SEAT

FRED ELSASS | DRIVER has always been your magazine. But you, the reader, can make it even more your mag. Here's how. There's a lot going on out there that we don't know about—but you do. So we're doing this thing called "In the DRIVER's Seat." Its purpose—for you to let us, and everyone else, know what's happening.

If you've done something unique in the way of autosports, safety, or in any area of interest to DRIVER readers, or know someone who has, let us know. We'd like to put one of you "in the DRIVER's seat" every month.

Our first person "in the seat" is the current International Hot Rod Association (IHRA) R/Stock record holder—TSgt Frederick Elsass. Sergeant Elsass grabbed the record on 27 April 1973 at Denton, Texas, when his 283cid-powered 1965 Chevrolet Biscayne turned a best time of 16.14 with a top speed of 86.53 for the quarter mile.

The Dyess AFB-based sergeant built the record-holding car at his home with the help of SSgt Roger Barnhart. Assistance was also received from Lawrence Hall Chevrolet, Westgate Goodyear, and Mr. Oura Clair who did the engine work.

Elsass is currently pursuing the national R/Stock Auto record. He's the only active duty military member that *we* know of who holds a national drag record. How about it readers? Send your nominations for "In the DRIVER's Seat" to Editor, DRIVER Magazine, AFISC/SEDD, Norton AFB CA 92409.

BICYCLE BRAKE CAUTION

Owners of bicycles equipped with wheel rim-gripping brakes should be aware that these brakes can fail when wet.

One 13-year-old boy required 200 stitches in his arm when his 10-speed's brakes failed to keep him from going through a plate glass window. He had been riding in the rain.

If your children ride bikes with caliper-type brakes, you should caution them against riding on wet surfaces. If they must do it, however, suggest they ride slowly, and test their bike's braking action frequently to get a "feel" for any change in braking power.

CAR THEFTS

Law enforcement people say 2,500 cars will be stolen today. Don't let yours be "among the missing." Here's how:

1. Never leave the ignition key in an unattended car.
2. When you leave your car in an attended parking lot, leave only the ignition key. Take the other keys and your name tag with you.
3. Never leave the doors or windows unlocked; that's inviting theft and vandalism.
4. Always park in heavily-traveled, well-lighted areas.
5. Lock up valuables, or hide them from view when you park your car.
6. If you have car trouble on the freeway, wait for the police to come. Let them call a service station—never abandon your car.
7. One way to check against unauthorized use of your car when you leave it at a parking lot is to note the mileage when you leave, and again when you return.
8. Double-check to see that all doors and trunks are locked, and all windows fully closed when you park near a sports arena, movie, or other place where a thief can figure out how long you'll be gone.
9. Keep your keys safe in an inside pocket.
10. Hiding a spare ignition key anywhere in or on the car is good news for the car thief—he knows all the "hiding" places. More than 41 percent of stolen cars are driven away with their own keys.
11. When you're driving alone at night, keep the doors locked.
12. Even when your car is in your own driveway or garage, keep it locked. Most car thefts occur in residential areas, and over half of them occur at night.

The 2,500 cars that will be stolen today represent over $3 million—and that's a lot of bread!

(Information from public relations, Chrysler Motors Corporation)

ANSWER TO WHAT SHOULD YOU DO?

(See page 25 before reading)

Your best bet in this situation is to HARD BRAKE BEFORE HITTING THE WATER, GRIP WHEEL FIRMLY, AND STEER STRAIGHT AHEAD.

At the speed you are going your tires will hydroplane and lose contact with the road surface. The hydroplaning will stop as you slow down, and hopefully you will maintain your present direction by steering straight ahead.

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TUNEUP
SELF SERVICE ISLAND
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REGULAR .53 9/10 GAL
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"... on the other hand, when it goes to a buck a gallon, you can look back on today with nostalgia ..."

"WHO did you say gets to drive home in this gas-saving, non-polluting, bicycle pool?"

Miss DRIVER

"You readers who work underneath your cars ought to know something. If you don't use jack stands, you're asking for big trouble. In the past year and a half, in the Air Force alone, we've had nine accidents where a car has fallen off the bumper jack and wiped out or injured the guy underneath. You can get a good set of jack stands for less than six dollars in a parts or discount store, so why take the risk of working without them? By the way, when you use jack stands be sure to adjust them each time you have to raise the car."

SHARON PARR